UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte THOMAS GILCHRIST
and
DAVID MICHAEL HEALY

Appeal No. 2005-0012
Application 09/424,811

ON BRIEF

Before GARRIS, PAK, and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-8 and 10-15. A copy of each of these claims is set forth in the attached Appendix.

Claims 1-8 and 10-15 stand rejected under 35 U.S.C. §103 as being obvious over Gilchrist in view of Loewenstein and Tooley.

On page 2 of the answer, the examiner indicates that the 35 U.S.C. §112, first paragraph, rejection has been withdrawn.

In the paragraph bridging pages 2-3 of the brief, appellants refer to a petition filed with the brief. A Decision on Petition was rendered, dismissing this petition, on March 26, 2003 (Paper No. 29).

The examiner relies upon the following references as evidence of unpatentability:

Gilchrist 5,470,585 Nov. 28, 1995

Tooley, F.V. "Handbook of Glass Manufacture," Odgen Publishing Co., pages 242-243, 252-256, 282-285, 373-374 (1954)

Loewenstein, K.L., "The Manufacturing Technology of Continuous Glass Fibres," Elsevier, pages 32, 33, 102, 103 (1991).

On page 4 of the amended brief, appellants state that the claims do not stand or fall together. To the extent that any pending claim is argued separately, with regard to patentability, we will consider such claim in this appeal. See 37 CFR § 41.37(c)(1)(vii)(September 2004); formerly 37 CFR § 1.192(c)(7)(2003).

We have carefully reviewed the amended brief filed on December 6, 2002, and the answer, mailed February 26, 2003. This review has led us to the following determinations.

OPINION

We refer to pages 4-6 of the answer regarding the examiner's position for the 35 U.S.C. § 103 rejection.

Beginning on page 7 of the brief, appellants argue that Gilchrist's use of conventional methodology "was in fact successful in only providing short brittle fibers from such compositions."[1] Appellants also state that the problem of "forming fibers from phosphorous pentoxide water soluble glass compositions had not been fully understood or elucidated prior to

[1] This argument is not convincing, because, as the examiner points out on pages 6-7 of the answer, appellants' claims do not exclude the fibers from being short and/or brittle. Also, Gilchrist teaches that the glass is made into fibers. See column 3, lines 32-41 of Gilchrist.

the date of the current Application." Appellants also argue that the conventional method utilized in Gilchrist is more suitable for silicon dioxide base glasses rather than a phosphorous pentoxide water soluble glass composition. Brief, page 8.

Hence, it is appellants' position that Gilchrist is not enabling regarding forming water-soluble silver ion releasing glass fibers from phosphorous pentoxide water soluble glass compositions by using the conventional methods disclosed therein.

We are not convinced by the above-mentioned arguments made by appellants for the following reasons. We agree with the examiner's position made on page 7 of the answer, that the invention of Gilchrist is presumed enabled. As stated by the court in In re Spence, "[a]ppellant presents considerable argument, but nothing in the way of evidence . . . The invention disclosed in a patent is presumed to be operative because the patent enjoys a statutory presumption of validity, 35 U.S.C. 282 and operativeness is a prerequisite to validity, 35 U.S.C. 101." In re Spence, 261, F2d 244, 246, 120 USPQ 82, 83 (CCPA 1958). Also, "[i]nvalidity for lack of enablement is a conclusion of law and must be supported by facts proved by clear and convincing evidence . . . ." Nat'l Recovery Tech. v. Magnetic Separation Sys., 166 F.3d 1190, 1195, 49 USPQ2d 1671, 1675 (Fed. Cir. 1999).

In the instant case, appellants merely set forth assertions in the paragraph bridging pages 7 and 8 of the brief. Appellants do not present facts that prove, by clear and convincing evidence, that the invention of Gilchrist is invalid for lack of enablement. Therefore, the Gilchrist patent is presumed valid. Hence, Gilchrist's teaching that the glass fibers (which includes fibers formed from phosphorous pentoxide water soluble glass compositions) may be formed by a number of methods, including conventional or centrifugal procedures, is enabled. In this

context, we agree with the examiner's comments made on page 7 of the answer.

As stated, supra, Gilchrist states that the glass may be formed by a number of methods, one method being cast by conventional or centrifugal procedures, or it may be prepared via one or more stages of rod, fiber or tube drawing. See column 4, lines 42-45 of Gilchrist.

The issue now becomes, what steps are in a "conventional" procedure, as referred to by Gilchrist?

In the rejection, the examiner relies upon Loewenstein and Tooley for teaching conventional techniques for forming glass products. The examiner states that these references teach that the process includes heating raw materials to very high temperatures, followed by cooling the glass down, before any forming of the glass is conducted. Answer, page 4.

Beginning on page 10 of the brief, appellants argue that one of ordinary skill in the art of manufacturing a phosphorous pentoxide based soluble glass would not have combined the teachings of Tooley with Gilchrist because Tooley involves a method of manufacturing silicon dioxide based water insoluble glass bottles. In a similar manner, appellants also argue that one of ordinary skill in the art would not have combined Loewenstein with Gilchrist. Brief, pages 10-11. Appellants argue that because Tooley and Loewenstein are not directed to the formation of water-soluble glass fibers, one of ordinary skill in the art would not have been motivated to combine these references with Gilchrist. Brief, page 10. We are not convinced by such arguments.

We first point out that Appellants do not dispute that the teachings found in column 4 at lines 42-45 of Gilchrist is a teaching of the use of conventional methods. Brief, page 9,

second full paragraph. Appellants also do not dispute that Tooley and Loewenstein represent conventional methods for glass formation. Gilchrist provides a suggestion to the skilled artisan to look to teachings of conventional methods known in the art for making glass, such as those shown in Tooley and Loewenstein.

Near the bottom of page 10 of the brief, appellants recognize that the method described in Tooley "involves the steps of heating the glass forming composition above its melting point, and then cooling it to a working temperature".

Appellants state that the method of Tooley "involves cooling the molten glass to a working temperature where the working temperature is cool enough to allow the glass articles to be formed, presumably by glass blowing or casting." Appellants assert that Tooley neither discloses nor suggests maintaining the glass at the working temperature before processing. Brief, page 11.

In response, on page 10 of the answer, the examiner states that, as argued on page 5, second paragraph of the brief, the working temperature is a temperature at which the process is practiced, and hence "maintaining" the working temperature is implicit and inherent in the practice of the process. The examiner therefore states that this aspect of appellants' claim is inherent in both Tooley and Loewenstein.

We note that, as stated, supra, appellants admit that "the method of Tooley involves cooling the molten glass to a working temperature where the working temperature is cool enough to allow the glass articles to be formed." The fact that the glass articles are formed at the working temperature is a teaching that the working temperature is maintained while such processing is conducted. Hence, Tooley teaches to process the molten glass at

the working temperature, and hence, maintains the working temperature while such is conducted.

In the paragraph bridging pages 11-12 of the brief, appellants also argue that one skilled in the art involving the biological field would shy away from consulting a work, as found in Loewenstein, which is concerned with the manufacture of continuous fibers for electrical and optical applications. We disagree with appellants' position here. As stated, supra, appellants do not dispute that Loewenstein is a teaching of conventional methods of glass formation. Gilchrist teaches that conventional methods of glass formation can be used in making the fibers of Gilchrist. Therefore, motivation is provided by the prior art to motivate one of ordinary skill in the art to use the conventional glass formation process in Tooley or Loewenstein for forming the glass found in Gilchrist.

Appellants admit that the method disclosed in Loewenstein involves a step of heating a composition above its melting point, and teaches that the temperature of the glass should stay constant or fall slightly. Brief, page 12. Appellants state that there is no suggestion that cooling and maintaining the molten glass at a lower temperature allows better quality glass fibers to be obtained. Brief, page 12. Appellants argue that Loewenstein does not disclose or suggest the step of maintaining a portion of the molten glass at the working temperature. We refer to our discussion, supra, wherein we stated that because the molten glass is processed at a working temperature, then a working temperature is maintained for such to be conducted. Hence, we agree with the examiner position with regard to Loewenstein.

In view of the above, we therefore affirm the rejection of claim 1.

Claim 2

On page 13 of the amended brief, appellants argue that claim 2 is separately patentable because it further defines the rate at which the molten glass, recited in claim 1, is cooled. Appellants argue that the applied art does not give any guidance regarding the manner in which the working temperature is reached. We disagree because Tooley discloses that a slow setting rate for the molten glass can be utilized. Page 373, column 2, last paragraph. Appellants' arguments do not convince us that Tooley's teaching is distinguishable from the claim language of "cooled slowly".

Hence, the claim language of "cooled slowly" would have been suggested by the conventional method disclosed in Tooley. We therefore affirm the rejection of claim 2.

Claims 3 and 11

Appellants state that claims 3 and 11 recite a preferred working temperature range, and argue that the applied references do not provide guidance regarding this claimed working temperature range.

We refer to Tooley's discussion regarding the "working range" in Section V., beginning on page 373. Tooley teaches that the selected working range corresponds to a viscosity range. For example, the slower end of the working range is defined as "the temperature at which it is sufficiently viscous to hold its formed shape (generally corresponding to a viscosity greater than 10^6 poise)." Tooley, page 373, column 1. Based upon this teaching, we agree with the examiner's position, made on page 6 of the answer, that it would have been obvious to determine the optimal temperature for the working range. We note that the normal desire of scientists or artisans to improve upon what is

already generally known, provides the motivation to determine where in a disclosed set of percentage ranges, is the optimum combination of percentages. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980)("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." (citations omitted)).

Hence, a working temperature of 50-300°C above the Tg of the glass is deemed to be a result effective variable, and therefore, obvious.

In view of the above, we therefore affirm the rejection of claims 3 and 11.

Claims 4 and 12

Appellants argue that claims 4 and 12 are separately patentable because these claims recite a working temperature based on the temperature of the glass as initially heated.

Appellants state that the applied art does not suggest the working temperature in relation to the temperature of the glass as initially heated.

Claims 4 and 12 each requires that the working temperature is at least 200°C below the temperature to which the glass is initially heated. We refer to our discussion, supra, with regard to claims 3 and 11, and, for the same reasons, conclude that a temperature of at least 200° below the temperature to which the glass is initially heated is deemed to be a result effective variable, and therefore, obvious.

In view of the above, we affirm the rejection of claims 4 and 12.

Claims 5 and 13

On page 13 of the brief, appellants argue that the production of glass wool fibers by the method of the present invention is not disclosed in the cited references. We disagree because Gilchrist indicates that the glass can be in the form of wool. See column 3, line 45 through 49.

In view of the above, we affirm the rejection of claims 5 and 13.

Claims 6 and 14

On page 13 of the brief, appellants argue that using phosphorous pentoxide as a glass former is not disclosed by the cited references. We disagree, as Gilchrist teaches that the glass formed in Gilchrist comprises phosphorous pentoxide as the principal glass former. See column 3, lines 64-65.

We therefore affirm the rejection of claims 6 and 14.

Claims 7, 8, and 15

Appellants argue that the applied references do not suggest the use of boron containing compounds used as glass modifiers. We disagree, as Gilchrist teaches that the glass may contain boric oxide. See column 3, line 61.

With specific regard to claim 8, claim 8 recites an amount of B_3O_3 at a "mole percent of 15% or less". Thus, claim 8 actually can require a zero mole percent amount of B_3O_3. Gilchrist teaches that boron is an optional component, in an amount of "less than 5 mole%". See column 3, lines 60-62.

In view of the above, we affirm the rejection of claims 7, 8, and 15.

Claim 10

On page 14 of the brief, appellants argue that claim 10 requires that the silver orthophosphate is added during manufacture of the glass as a source of silver ions. Appellants assert that this aspect of the claimed invention is not taught by the applied references. We disagree, as Gilchrist teaches that silver orthophosphate is used. See column 4, lines 9-12 of Gilchrist.

In view of the above, we affirm the rejection of claim 10.

CONCLUSION

The 35 U.S.C. §103 rejection of claims 1-8 and 10-15 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv)(effective Sept. 13, 2003; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat., Office 21 (Sept. 7, 2004)).

AFFIRMED

Bradley R. Garris)
Administrative Patent Judge)
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Chung K. Pak) BOARD OF PATENT
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APPENDIX

1. A method for forming water-soluble silver ion releasing glass fibers, the method comprising providing a composition suitable for producing a water-soluble silver ion releasing glass and heating said composition above the melting point of said glass to form a molten glass, cooling at least a portion of said molten glass to a preselected working temperature, maintaining the temperature of the portion of said molten glass at the working temperature and then processing said molten glass having said working temperature into fibers.

2. A method as claimed in Claim 1 wherein said portion of said molten glass is cooled slowly to said working temperature.

3. A method as claimed in Claim 1 wherein said working temperature is 50-300°C above the Tg of the glass.

4. A method as claim in Claim 1 wherein said working temperature is at least 200°C below the temperature to which the glass is initially heated.

5. A method as claimed in Claim 1 wherein glass wool is formed.

6. A method as claimed in Claim 1 wherein phosphorous pentoxide is used as the glass former.

7. A method as claimed in Claim 6 wherein boron containing compounds are used as glass modifiers.

8. A method as claims [sic, claimed] in claim 7 wherein B_3O_3 is used as a glass modifier at a mole percentage of 15% or less.

10. A method as claimed in Claim 1 wherein silver orthophosphate is added during manufacture of the glass as a source of silver ions.

11. A method as claimed in Claim 2 wherein said working temperature is 50-330°C above the Tg of the glass.

12. A method as claimed in Claim 2 wherein said working temperature is at least 200°C below the temperature to which the glass is initially heated.

13. A method as claimed in Claim 14 wherein glass wool is formed.

14. A method as claimed in Claim 5 wherein phosphorous pentoxide is used as the glass former.

15. A method as claimed in Claim 1 wherein boron containing compounds are used as glass modifiers.